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tion in that immediate part. This was as near to the full explanation as science could get as yet.

The facts were not as new as he liked to bring before the Academy, devoted as it is to original research; but the conclusions of the Troy paper are rather recent, and not yet well known, and this might excuse his remarks.

Mineralogical Notes.—Dr. GEORGE A. KŒNIG spoke about the coloring matter of the *amazon stone* from Pike's Peak. This beautiful mineral has lately been obtained in large specimens and in considerable quantity through the exertions of Dr. Foote, who furnished the author with the material for this investigation. The color of the amazon stone from Pike's Peak varies between a light bluish-green and a dark emerald-green. On many specimens the faces of modification, as prisms and domes, are without color, or yellowish, or flesh-colored. The interior of very large crystals is likewise of a much lighter color generally than the outside.

Assuming the coloring principle to be a compound of iron, the following experiments were made to test the value of this hypothesis:—

1. Fragments were exposed to the action of boiling hydrochloric acid and aqua regia for several days, until the liquid was free from iron. Under this treatment the intensity of color was increased, the coloring substance withstands, therefore, the action of the above agents.
2. Fragments, prepared by the treatment described, were placed in a glass tube, and hydrogen passed through the latter at a red heat. After cooling, the mineral was found possessed of an evenly spread *gray color.*
3. The same pieces were now treated with oxygen at a red heat, and exhibited, after cooling, an even *rose* color, the intensity of which was proportional to the intensity of the green.
4. Green fragments were heated in an atmosphere of dry chlorine, at increasing temperatures. No change occurred until at a red heat, when the mineral became perfectly white, and a slight sublimation of ferric chloride was noticed.
5. The rose-colored pieces become white when boiled in strong hydrochloric acid.
6. Thin fragments do not show at any place a concentration of the green color, when examined under the microscope.
7. Heated in the outer flame of a Bunsen burner, the same effect is caused as in the current of oxygen, but with a less brilliant color.

These experiments prove—

First. That the basis of the coloring substance is *iron.*

Second. That the iron is present as a very stable compound, probably as an organic salt.

Third. That the coloring substance is not in molecular combination with the feldspar; because, if it were so, the iron could not be extracted completely by hydrochloric acid from a solid piece after oxidation; but that the color is of later date, and caused by infiltration into the numberless capillary cleavage fissures of the mineral.

Investigation into the composition of the organic acid is reserved for a future communication.

Dr. KŒNIG also mentioned his discovery of *Zircon* in the amazon stone from Pike's Peak. Dr. Foote had observed brownish spots in the feldspar, with an apparent cleavage. The speaker was able to extract complete crystals, showing a tetragonal habitus: $P + \infty P \infty$. The largest crystal measures $\frac{1}{4}$ inch in length by $\frac{1}{8}$ inch square. The angle of the pyramidal faces was found 122°, which is near the zircon angle. The prismatic faces are uneven by the preponderance of a step-like structure; there is a prismatic cleavage. Lustre, greasy vitreous; color, dark grayish-brown; fracture, straight. $H = 6.5$, spec. gr. $= 4.065$. Every crystal is associated with columbite in well-defined prismatic needles, which pierce the zircon. The powder has a cinnamon color. Owing to the deficiency of material, only an approximate analysis can be given for the present.

$SiO_2 = 28.00$
$MgO = 8.93$
$(Fe_2O_3)ZrO_2 = 60.00$
$H_2O = 3.47$

100.40

Besides the large percentage of magnesia, there is a very anomalous behavior in the zirconia. It is easily soluble in oxalic acid, and the oxalate dissolves in a very small quantity of water, and is not decomposed by boiling in a dilute solution. He had since established the same behavior in the earth from the Clay County, N. C., zircons, and was still engaged in the study of this matter.

Dr. KŒNIG mentioned further the occurrence of *earthy barite* on the calcite from the city quarries of St. Louis, Mo.

This mineral is found in very friable clusters between the large crystals of calcite. Color perfectly white. Under the microscope the powder resolves into transparent prismatic crystals. They are small enough to pass through the meshes of a hair sieve.

The analysis gave—

$BaSO_4 = 98.8$
$Fe_2O_3 = 0.5$
Ignition = 0.14

99.44

This is one of the purest varieties of barite on record.